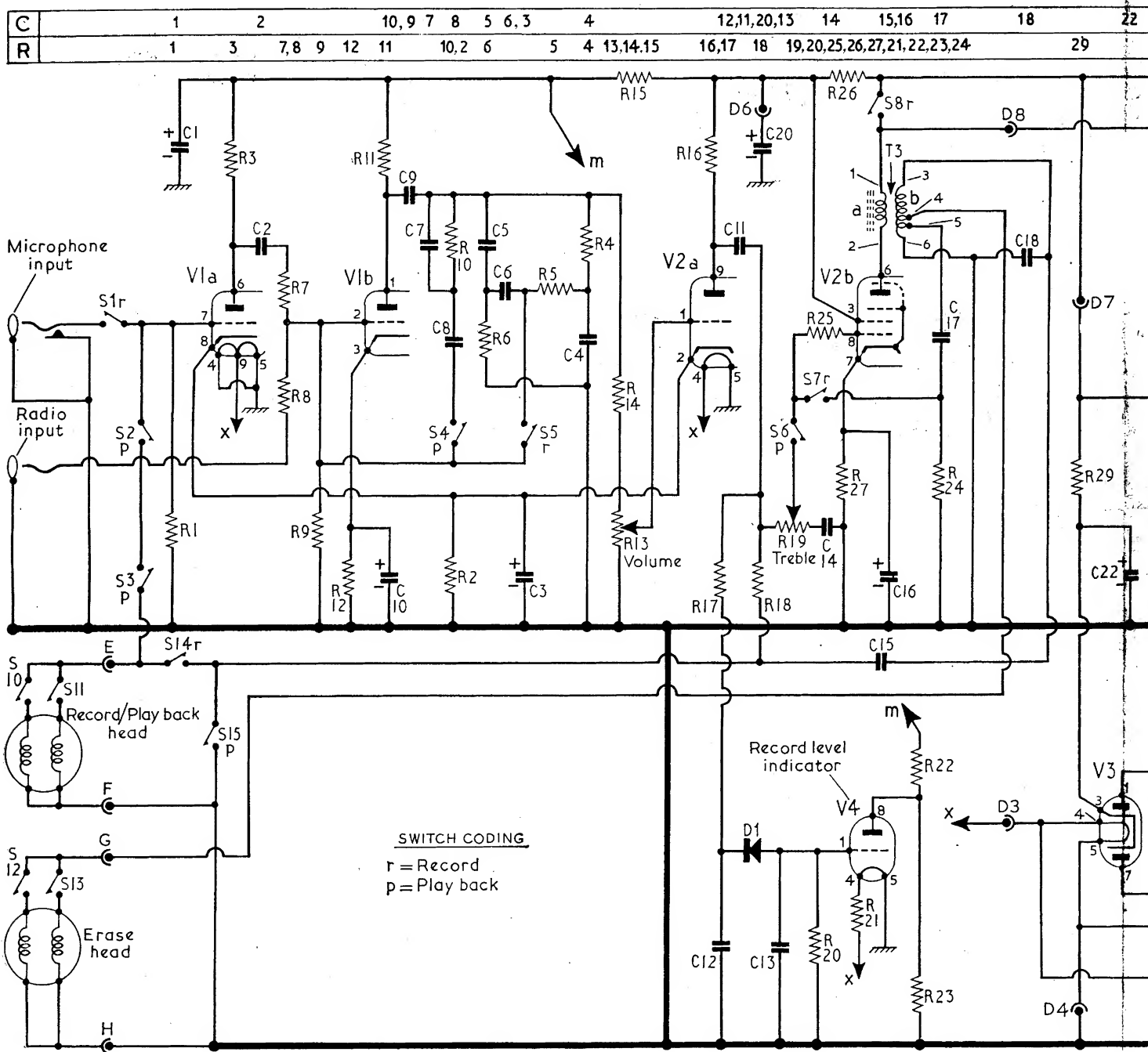


"TRADER" SERVICE SHEET

1536

ALBA R14 &

Incorporating the B.S.R. type TD2 Tape Deck

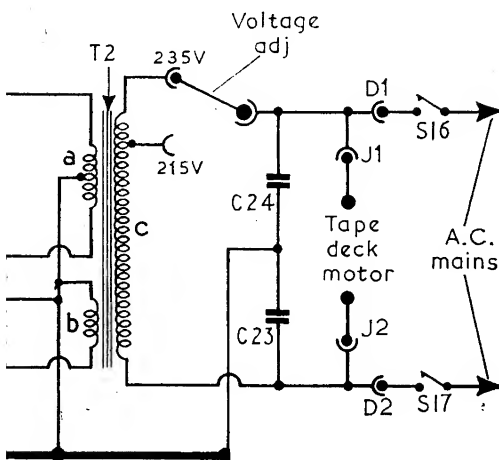
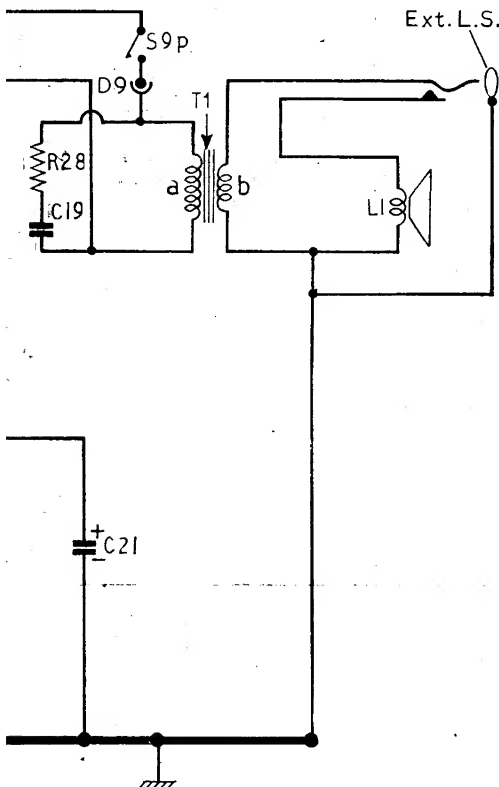


Circuit diagram of the Alba R15 tape recorder. The R14 uses the same circuit except for the tape heads which have single windings in place of the double windings shown. Track switch unit S10-S13 is omitted. V2b functions as erase and bias voltage oscillator on record, and as the audio output on play back.

R15

ck

19 21	23.24	C
28		R



place of the dual windings shown here.
put valve on playback.



A LBA models R14 and R15 are respectively two-track and four-track tape recorders employing the same basic chassis. This *Service Sheet* was compiled from an R15 four-track model but by omitting the track switches it also covers the R14. Both models incorporate the B.S.R. tape deck type TD2 with a single speed of $3\frac{3}{4}$ in/sec. Tape reels of up to $5\frac{1}{2}$ in diameter may be used. Two input sockets are provided giving facilities for mixing on record and the radio input may be used on playback to mix an external signal with tape signals. A third socket is fitted for the connection of an external loudspeaker.

Release date (both models): May 1961. Original prices: R14, £25 4s; R15, £28 7s.

(Continued overleaf, col. 1)

Resistors

R1	100kΩ	A2
R2	1.2kΩ	A2
R3	100kΩ	A2
R4	220kΩ	B2
R5	220kΩ	B2
R6	100kΩ	B2
R7	150kΩ	A2
R8	470kΩ	A1
R9	560kΩ	B2
R10	270kΩ	B2
R11	100kΩ	B2
R12	1.8kΩ	B2
R13	500kΩ	B1
R14	47kΩ	B2
R15	22kΩ	C2
R16	56kΩ	D2
R17	150kΩ	C1
R18	150kΩ	C2
R19	1MΩ	C1
R20	10MΩ	A1
R21	220Ω	A2
R22	47kΩ	A2
R23	33kΩ	A2
R24	47kΩ	C2
R25	10kΩ	C2
R26	2.7kΩ	C2
R27	150Ω	D2
R28	4.7kΩ	E4
R29	390Ω	E4

Capacitors

C1	1μF	B2
C2	0.05μF	A2
C3	100μF	A2
C4	160pF	B2

C5	82pF	B2
C6	82pF	C2
C7	68pF	B2
C8	430pF	B2
C9	0.05μF	B2
C10	25μF	B2
C11	0.05μF	C1
C12	270pF	B1
C13	0.05μF	A1
C14	200pF	C2
C15	220pF†	C2
C16	100μF	D2
C17	500pF	C2
C18	3,700pF	C3
C19	1,000pF	E4
C20	10μF	E4
C21	20μF	E4
C22	30μF	E4
C23	0.01μF	E4
C24	0.01μF	E4

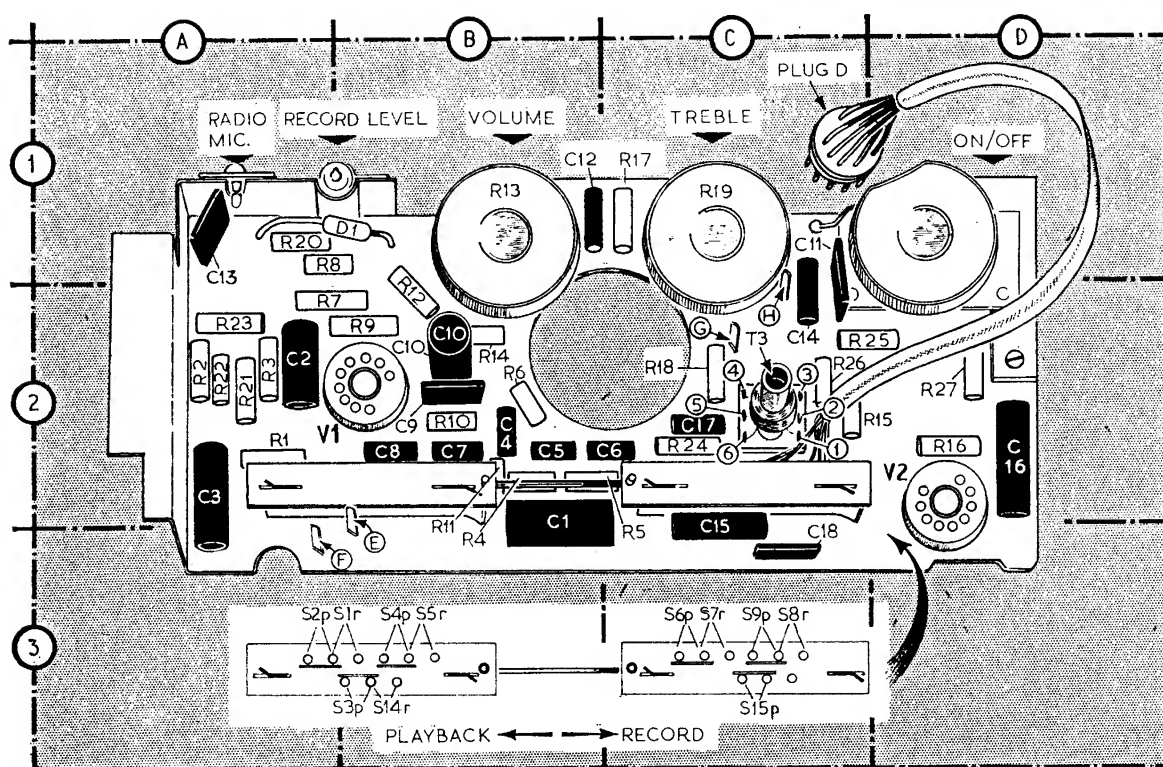
Transformers*

T1	{ a 500.0 } E4
	{ b — } E4
T2	{ a 700.0 } E4
	{ b — } E4
T3	{ c 120.0 } C2
	{ a 5.0 } C2
	{ b 9.5 } C2

Miscellaneous

D1	OA81	B1
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*Approximate D.C. resistance in ohms.
†100pF in two-track model.



Component-side view of the printed circuit panel. Below the panel are the record/replay switches illustrated as they would appear if seen through the paxolin top pieces. Their position on the panel is indicated by the arrow. Plug D carries the connections to the power supply and audio output chassis.

(Continued from overleaf)

VALVE ANALYSIS

Valve voltages given in the table below are those supplied by the manufacturer. They were measured on an Avometer, model 8, with the recorder switched to playback on track 4 with no signal input.

Valve Table

Valve	Anode (V)	Screen (V)	Cathode (V)
V1 ECC83	115	—	1.2
V2 ECL86	95	—	1.05
V3 EZ80	150	—	1.2
V4 DM70	—	193*	4.5
	—	—	220

Total H.T. current 35mA.

*Screen current 4.5mA.

CIRCUIT DESCRIPTION

Record.—Microphone input is connected to V1a grid via S1. This input socket is short-circuited when the microphone jack is withdrawn. Higher level radio or gram inputs are fed via R8 to the grid of the second amplifier V1b. A frequency compensating network comprising R4, R5, R6, C4, C5, and C6 is connected between anode and grid of V1b.

After further amplification by V2a the signal is applied via C11, R18 and S14 to the record/playback head. The record level indicator V4 is energised by the recording signal which is fed via R17 and rectified by D1. R13 is the record level control.

V2b operates as the bias waveform

generator. Its grid is isolated by S6 from the output from V2a and it is established in an oscillating condition at about 60 kc/s by the connection of feedback capacitor C17 via S7. Bias voltages are fed via C15 to the record head and erase voltages are fed to the erase head from a tapping on T3 secondary winding. Output transformer T1 is out of circuit. Tracks 1 and 4 or 2 and 3 are recorded depending on the position of switches S10-S13.

Playback.—The record/playback head is switched by S2 and S3 to the grid of V1a. Base lift is provided by a feedback circuit C7, C8 and R10. S6 is closed and the tone control R19 in conjunction with C14 is operative. V2b operates as a normal output stage, T1 is brought into circuit by S9 and the oscillator feedback circuit is disconnected by S7. S15 short-circuits the bias output circuits.

TAPE DECK

The tape deck which is incorporated is the B.S.R. type TD2. Service to the TD2 is covered by "Trader" Service Sheet 1510, 5 August 1961.

The recorder manufacturers state that it is possible to make a pause in recording by pulling the motor button slightly backwards in the gate to release the pressure between the capstan and the rubber roller.

Erase and Bias Voltages

Model	Erase Head (V)	Record Head (V)
Two-track	30	70
Four-track	17	36

GENERAL NOTES

Azimuth Alignment.—Azimuth alignment should only be carried out using a high frequency commercial test tape or a pre-recorded high frequency tape from a recorder with perfect head alignment.

Slacken the head screw with the spring washer but still retain some tension. While playing the test tape, adjust the other head screw for maximum output. Lock the head in this position by tightening the first screw.

Dismantling.—To remove the tape deck from the cabinet, unscrew the two Phillips head self tapping screws securing the deck and the two 6BA screws securing the escutcheon to the cabinet.

Remove the escutcheon and lift the deck by its front edge so that it rests on the cabinet on its rear edge.

Withdraw the head connecting sockets H, G, E and F from their plugs on the printed board.

Withdraw the plug from socket J in the power unit chassis and lift the tape deck away from the cabinet.

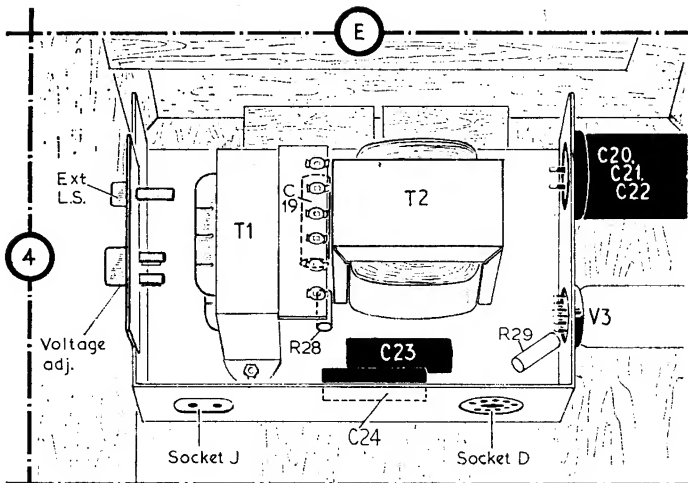
To remove the amplifier from the cabinet remove the screw securing the cable cleat to the cabinet bottom.

Withdraw the plug from socket D on the power unit.

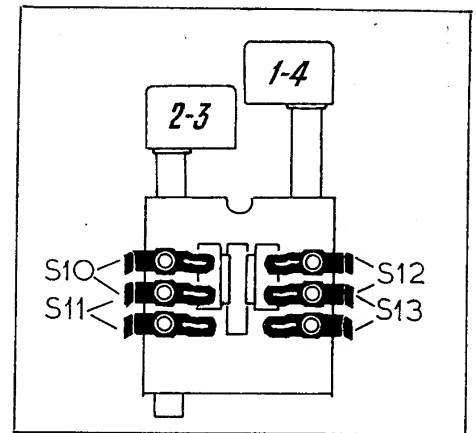
Unsolder the mains lead from switches S16 and S17.

Remove the 4BA nut and Phillips head screw securing either end of the printed panel.

Withdraw the printed panel by moving



Left: Power supply and audio output chassis as it appears when the tape deck is removed. Socket J receives the plug (not shown) which carries the mains supply to the tape deck motor. Right: Illustration of the track switches on model R15. They are located on the tape deck itself and are drawn as seen when looking from the rear of the deck.



it backwards and upwards to clear the loudspeaker and cabinet.

To remove the power unit from the cabinet, unsolder the loudspeaker connections.

Remove the four nuts securing the power unit to the cabinet and lift the power unit clear.

When refitting the tape deck to the cabinet care should be taken to locate the spring clip on the deck record/playback switch over the extension arm of the slider switch unit on the printed panel. The leads from the tape heads should be positioned as far as possible from the motor to keep hum pick-up to a minimum.

Switches.—S1-S9 and S14, S15 are the record/replay changeover switches which are ganged in two slider units on the printed circuit panel. S10-S13 are the track switches which are combined in a two-pole press-button unit mounted on the rear portion of the tape deck. Illustrations of the contacts are shown above.

